

The present invention is directed to a construction for downsizing a chip type light emitting device in which an LED chip is mounted on a substrate to form a pair of electrodes at both ends of the substrate, and at the same time the electrodes are conducted on a rear surface of the substrate so that the substrate can be directly connected to a circuit board when it is mounted thereto.

Under a condition by which downsizing of a chip type light emitting device is needed, it is required that an LED chip is displaced from the substrate center as shown in Fig. 3, but displacing the LED chip can create a problem of degrading light emitting patterns, and when the LED chip is arranged at the center portion of the substrate, as shown in Fig. 4, there is simply no place to carry out wire bonding. Moreover, on the notch where the electrode pattern is allowed, pressing force cannot be sufficient applied when the wire-bonding is carried out ultrasonically, hence causing a problem for obtaining a reliable bonding.

In short, the present invention is characterized in that a notch on the second electrode pattern side is divided into two and the two notches are formed in such a way that a space for wire bonding can thereby be secured between the notches.

The outstanding Action has asserted that it would have been obvious for an artisan to modify the *APA* to include the two notches as taught by *JP '267*. However, for the reasons stated below, it is respectfully submitted that there is simply no motivation to combine *APA* with *JP '267*, and that the combination thereof would not have yielded the claimed invention.

First of all, the **APA's** construction in Fig. 3 lacks any LED chip at the substrate center, and therefore a combination thereof with **JP '267** would not have yielded the present invention as set forth in claim 2.

As to **JP '267**, the two notches disclosed therein are not even provided at the same substrate end of the second electrode pattern side, but rather they are provided on different electrode sides, respectively, and in a longitudinal direction. Additionally, the outstanding Action states that **JP '267** discloses "on figure 8 that an LED device...." However, it is noted that **JP '267** only has an electronic device which is not an LED. Indeed, **JP '267** merely describes a protective layer W and does not even mention a covering with transparent resin.

Accordingly, **JP '267** is not at all concerned with the wire bonding between two notches to secure a place for bonding. Instead, **JP '267** merely discloses a construction by which corners are removed. As such, without using impermissible hindsight, one of skilled in the art would lack any motivation to modify **APA** in view of **JP '267** for the purpose of downsizing the chip type light emitting device in order to arrive at the claimed invention.

However, even if one of skilled in the art were to combine **APA** and **JP '267** using impermissible hindsight, one would not have arrived at the claimed invention, which advantageously downsizes a chip type light emitting device by dividing a notch into two on one end of the substrate, which is the second electrode pattern side, and forming the two notches on both sides (width direction) so that wire-bonding between the divided notches can be carried out.

**Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *APA* in view of *JP '267* and *Okazaki* (USPN 5,814,837).**

The outstanding Action asserts that *Okazaki* teaches a substrate 17 which is 1.6 mm x 0.8 mm or smaller, and when combined with the teaching of Fig. 3 or Fig. 4 of the *APA*, would be sufficient to yield the present invention as set forth in claim 3. However, it is respectfully submitted that there is simply no motivation for such suggested combination by one of skilled in the art because the device construction other than the dimensions of the substrate in *Okazaki* is complete different from either the *APA* or claimed invention. Indeed, *Okazaki* is not at all concerned with securing a space for wire bonding when the device are down-sized. As such, one of skilled in the art would simply not be able to carry out wire bonding using the substrate of *Okazaki*.

In light of the discussion above, Applicant respectfully requests reconsideration and withdrawal of all rejections, and submits that the present invention as set forth in claims 1-5 is in condition for allowance. If the Examiner believes anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicant's representative at the telephone number listed below.

In the event this paper is not considered to be timely filed, Applicant hereby petitions for an appropriate extension of time. The fee for this extension may be charged to our Deposit Account No. 01-2300.

The Commissioner is hereby authorized to charge any fee deficiency or credit  
any overpayment associated with this communication to Deposit Account No. 01-2300.

Respectfully submitted,

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